

What is claimed is:

1. A composition of matter of the formula

$$(A^1)_a-F^1-(A^2)_b$$

and multimers thereof, wherein:

5 F¹ is a vehicle;

A¹ and A² are each independently selected from -(L¹)_c-P¹, -(L¹)_c-P¹-(L²)_d-P², -(L¹)_c-P¹-(L²)_d-P²-(L³)_e-P³, and -(L¹)_c-P¹-(L²)_d-P²-(L³)_e-P³-(L⁴)_f-P⁴

10 P¹, P², P³, and P⁴ are each independently sequences of Apo-AI amphipathic helix peptide or Apo-AI amphipathic helix peptide - mimetic domains;

L¹, L², L³, and L⁴ are each independently linkers; and

15 a, b, c, d, e, and f are each independently 0 or 1, provided that at least one of a and b is 1.

15 2. The composition of matter of Claim 1 of the formulae

$$A^1-F^1$$

or

$$F^1-A^2.$$

20 3. The composition of matter of Claim 1 of the formula

$$F^1-(L^1)_c-P^1.$$

4. The composition of matter of Claim 1 of the formula

$$F^1-(L^1)_c-P^1-(L^2)_d-P^2.$$

25 5. The composition of matter of Claim 1, wherein F¹ is an Fc domain.

6. The composition of matter of Claim 1 wherein F¹ is an IgG Fc domain.

7. The composition of matter of Claim 1 wherein F¹ is an IgG1 Fc domain.

25 8. The composition of matter of Claim 1 wherein F¹ comprises the sequence of SEQ ID NO: 2.

9. The composition of matter of Claim 1 wherein the Apo-AI amphipathic helix peptide or Apo-AI amphipathic helix peptide - mimetic domain sequence is of the formula

Asp Trp Leu Lys Ala Phe Tyr Asp Lys Val Ala Glu Lys Leu Glu Ala Phe
5 (SEQ ID NO: 7)

10. The composition of matter of Claim 9, wherein F¹ is an Fc domain.

11. The composition of matter of Claim 9, wherein F¹ is an IgG Fc domain.

12. The composition of matter of Claim 11, wherein F¹ is an IgG1 Fc domain.

13. The composition of matter of Claim 5, having a sequence selected from Table 2 (SEQ ID NOS: 8 to 11).

14. A DNA encoding a composition of matter of Claim 5.

15. 16. A DNA encoding a composition of matter of Claim 10.

17. An expression vector comprising the DNA of Claim 14.

18. An expression vector comprising the DNA of Claim 15.

19. A host cell comprising the expression vector of Claim 16.

20. A host cell comprising the expression vector of Claim 17.

21. The cell of Claim 18, wherein the cell is an E. coli cell.

22. The cell of Claim 19, wherein the cell is an E. coli cell.

22.✓ A process for preparing a Apo-AI amphipathic helix peptide - mimetic compound, which comprises:

a) selecting Apo-AI amphipathic helix peptide or at least one Apo-AI amphipathic helix peptide -mimetic peptide; and

25 b) preparing a pharmacologic agent comprising at least one Fc domain covalently linked to at least one amino acid sequence of the selected peptide or peptides from step a).

23. The process of Claim 22, wherein the peptide is selected from the SEQ ID NO: 7.

24. The process of Claim 22, wherein the peptide is selected in a process comprising screening of a phage display library, an E. coli display library, a ribosomal library, an RNA-peptide library, or a chemical peptide library.

5 25. The process of Claim 22, wherein the preparation of the pharmacologic agent is carried out by:

- a) preparing a gene construct comprising a nucleic acid sequence encoding the selected peptide and a nucleic acid sequence encoding an Fc domain; and
- 10 b) expressing the gene construct.

26. The process of Claim 25, wherein the gene construct is expressed in an E. coli cell.

27. The process of Claim 22, wherein the selection of the peptide is carried out by a process comprising:

15 a) preparing a gene construct comprising a nucleic acid sequence encoding a first selected peptide and a nucleic acid sequence encoding an Fc domain;

b) conducting a polymerase chain reaction using the gene construct and mutagenic primers, wherein

20 i) a first mutagenic primer comprises a nucleic acid sequence complementary to a sequence at or near the 5' end of a coding strand of the gene construct, and

ii) a second mutagenic primer comprises a nucleic acid sequence complementary to the 3' end of the noncoding strand of the gene construct.

25 28. A method of treating hypercholesterolemia, which comprises administering a composition of matter of Claim 1.

29. A method of treating viral infection, which comprises administering a composition of matter of Claim 1.

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30. The method of Claim 29, wherein the viral infection is an HSV infection.
31. The method of Claim 29, wherein the viral infection is an HIV infection.

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